

CLAIMS

We claim:

1. A fresh meat product, comprising:
a meat obtained from a dark-cutting carcass having a grading pH;
and,
an amount of at least one pH-lowering agent sufficient to lower the
grading pH of at least a portion of said meat.
2. A meat product according to claim 1, wherein the dark-cutting
carcass is a beef carcass.
3. A meat product according to claim 2, wherein the at least one pH-
lowering agent includes at least one acidulant.
4. A meat product according to claim 3, wherein the at least one
acidulant is present in an amount sufficient to lower the grading pH of at least a
portion of said meat.
5. A meat product according to claim 1, wherein the dark-cutting
carcass is a beef carcass and the at least one pH-lowering agent is at least one
acidulant.
6. A meat product according to claim 5, wherein the at least one
acidulant is chosen from organic acids, neutral cyclic esters of gluconic acid, and
sodium acid sulfate, and calcium sulfate.
7. A meat product according to claim 6, wherein the neutral cyclic
ester of gluconic acid is glucono-delta-lactone ("GDL").
8. A meat product according to claim 7, wherein the acidulant is
GDL.

9. A meat product according to claim 6, wherein the organic acid is chosen from acetic acid, citric acid, fumaric acid, gluconic acid, lactic acid, malic acid, phosphoric acid, succinic acid, and tartaric acid.
10. A meat product according to claim 1, wherein the pH-lowering agent is chosen from organic acids, GDL, and low pH phosphates.
11. A meat product according to claim 1, wherein the amount of pH-lowering agent is sufficient to lower the grading pH of substantially all the meat.
12. A meat product according to claim 1, wherein the amount of said at least one pH-lowering agent is sufficient to lower the grading pH at least about 0.2 pH units.
13. A meat product according to claim 11, wherein the amount of said at least one pH-lowering agent is sufficient to lower the grading pH at least about 0.2 pH units but no more than about 1.3 pH units.
14. A meat product according to claim 11, wherein the amount of said at least one pH-lowering agent is sufficient to lower pH from about pH 5.4 to about pH 6.
15. A meat product according to claim 13, wherein the amount of said at least one pH-lowering agent is sufficient to lower pH from about pH 5.4 to about pH 5.9.
16. A meat product according to claim 14, wherein the amount of said at least one pH-lowering agent is sufficient to lower pH from about pH 5.5 to about pH 5.8.
17. A meat product, comprising:
 - a meat having a grading color; and,
 - an amount of at least one pH-lowering agent sufficient to alter the grading color of at least a portion of said meat.

18. A meat product according to claim 17, wherein said meat is derived from a dark-cutting carcass.
19. A meat product according to claim 1, wherein said meat is derived from a dark-cutting bovine carcass.
20. A meat product according to claim 19, wherein said dark-cutting carcass has a dark burgundy/purple appearance and the amount of said at least one pH-lowering agent is sufficient to alter the grading color at least a portion of said meat to a bright cherry red typically associated with meat having a pH of from about pH 5.4 to about pH 6.1.
21. A meat product according to claim 19, wherein said at least one pH-lowering agent is chosen from organic acids, GDL, sodium acid sulfate, calcium sulfate, and low pH phosphates.
22. A meat product according to claim 21, wherein said at least one pH-lowering agent is at least one acidulant, and said at least one acidulant is chosen from organic acids, GDL, sodium acid sulfate, and calcium sulfate.
23. A meat product according to claim 22, wherein said meat has a green weight, and the amount of said at least one acidulant ranges from greater than 0% of the green weight of said meat to about 10% of the green weight of said meat.
24. A meat product according to claim 23, wherein the amount of said at least one acidulant ranges from greater than about 0% of the green weight of said meat to about 2% of the green weight of said meat.
25. A meat product according to claim 24, wherein the amount of said at least one acidulant ranges from about 0.3% of the green weight of said meat to about 0.6% of the green weight of said meat.
26. A meat product according to claim 25, wherein said at least one acidulant is GDL.

27. A meat product according to claim 24, wherein the amount of said at least one acidulant ranges from about 0.1% of the green weight of said meat to about 0.3% of the green weight of said meat.
28. A meat product according to claim 26, wherein the at least one acidulant is sodium acid sulfate.
29. A meat product according to claim 19, further comprising a buffering agent.
30. A meat product according to claim 29, wherein the buffering agent is a high pH phosphate.
31. A meat product according to claim 29, wherein the pH of the meat is between pH 5.5 and 5.9.
32. A meat product according to claim 30, wherein the pH of the meat is pH 5.7.
33. A meat product according to claim 21, wherein the at least one acidulant is at least two acidulants, and the at least two acidulants are together present in an amount sufficient to alter the grading color of at least a portion of said meat.
34. A method of treating meat, comprising: identifying meat in a dark-cutting carcass and contacting said meat derived from said dark-cutting carcass with an amount of at least one pH-lowering agent, wherein the meat has a grading pH and grading color, and the amount of pH-lowering agent is sufficient to lower the grading pH, alter the grading color, or both of at least a portion of said meat.
35. A method according to claim 33, wherein the at least one pH-lowering agent is at least one acidulant.

36. A method according to claim 34, wherein the grading color is a dark burgundy/purple and the amount of the at least one acidulant is sufficient to redden at least a portion of said meat.
37. A method according to claim 34, wherein the grading pH ranges from about 6.3 to about 6.7.
38. A method according to claim 36, wherein the at least one acidulant is chosen from organic acids, GDL, sodium acid sulfate, and calcium sulfate.
39. A method according to claim 37, wherein the process further includes tumbling said meat.
40. A method according to claim 33, wherein said contacting is accomplished by injecting said meat with a brine solution comprising said at least one pH-lowering agent.
41. A method according to claim 33, wherein said contacting is accomplished by marinating said meat in a brine solution comprising said at least one pH-lowering agent.
42. A method according to claim 33, further comprising a drip/rest period.
43. A method according to claim 33, further comprising packaging said meat.
44. A method according to claim 33, wherein said at least one pH-lowering agent is provided in an encapsulated form.
45. A method according to claim 33, further comprising contacting said muscle with a buffering agent.

46. A method according to claim 44, wherein the amount of said buffering agent is sufficient to eliminate or reduce residual activity of at least one of said at least one pH-lowering agents in said meat.
47. A method according to claim 44, wherein said buffering agent is a phosphate solution.
48. A method according to claim 33, further comprising contacting said muscle with one or more ingredients suitable for accelerating the action of at least one of said at least one pH-lowering agents.
49. A method according to claim 47, wherein the one or more ingredients suitable for accelerating the action of at least one of said at least one pH-lowering agents is chosen from erythorbate and ascorbic acid
50. A method of treating meat, comprising: identifying a bovine carcass as a dark-cutting bovine carcass and contacting meat derived from said dark-cutting bovine carcass with an amount of at least one pH-lowering agent, wherein the meat has a grading pH and grading color, and the amount of pH-lowering agent is sufficient to lower the grading pH, alter the grading color, or both of at least a portion of said meat.
51. A method according to claim 49, wherein the at least one pH-lowering agent is at least one acidulant.
52. A method according to claim 50, wherein the grading color is a dark burgundy/purple and the amount of the at least one acidulant is sufficient to redden at least a portion of said meat.
53. A method according to claim 50, wherein the grading pH ranges from about 6.3 to about 6.7.
54. A method according to claim 51, wherein the at least one acidulant is chosen from organic acids, GDL, sodium acid sulfate, and calcium sulfate.

55. A method according to claim 53, wherein the process further includes tumbling said meat.
56. A method according to claim 49, wherein said contacting is accomplished by injecting said meat with a solution comprising said at least one pH-lowering agent.
57. A method according to claim 49, wherein said contacting is accomplished by marinating said meat in a solution comprising said at least one pH-lowering agent.
58. A method according to claim 49, further comprising a drip/rest period.
59. A method according to claim 49, further comprising packaging said meat prior to contacting said meat with said pH-lowering agent.
60. A method according to claim 49, further comprising packaging said meat after contacting said meat with said pH-lowering agent.
61. A method according to claim 49, wherein said at least one pH-lowering agent is provided in an encapsulated form.
62. A method according to claim 49, further comprising contacting said muscle with a buffering agent.
63. A method according to claim 61, wherein the amount of said buffering agent is sufficient to stabilize the pH in said meat at a pH below the grading pH.
64. A method according to claim 61, wherein said buffering agent is a phosphate solution.

65. A method according to claim 49, further comprising contacting said muscle with one or more ingredients suitable for accelerating the action of at least one of said at least one pH-lowering agents.

66. A method according to claim 64, wherein the one or more ingredients suitable for accelerating the action of at least one of said at least one pH-lowering agents is chosen from erythorbate and ascorbic acid